CLAIMS

I claim:

1. A system for desalinating water, comprising:

at least one mixer for mixing saltwater with at least one ionized gas to produce a mixture of ionized gas and saltwater;

at least one filter for removing coagulated particles from the mixture of ionized gas and saltwater;

at least one disinfectant generator for generating a disinfectant from a saltwater; and

at least one reaction chamber for mixing the disinfectant with the mixture of ionized gas and saltwater, wherein the mixture of saltwater and ionized gas is separated into a salt slurry and desalinated water.

2. The system of claim 1, wherein reaction chamber further comprises at least one fogging nozzle for delivering the mixture of ionized gas and saltwater to the at least one reaction chamber.

3. The system of claim 1, further comprising at least one filter upstream of the mixer.

4. The system of claim 3, wherein the at least one filter upstream of the mixer comprises a strainer.

5. The system of claim 1, at least one filter for removing coagulated particles comprises a between about a 30 micron filter and about a 50 micron filter.

6. The system of claim 1, wherein the at least one reaction chamber operates at a negative internal pressure.

7. The system of claim 1, further comprising an ionized gas generator for providing ionized gas to the at least one mixer.

8. The system of claim 7, wherein the ionized gas generator includes a gas pathway for exposing a gas to ultraviolet radiation and to a magnetic field as the gas is passed through the ionized gas generator.

9. The system of claim 7, wherein the ionized gas generator is formed from a plurality of chambers, each chamber containing at least one ultraviolet lamp and each chamber adapted to allow a gas to pass the through the ionized gas generator.

10. The system of claim 9, wherein the plurality of chambers are coupled in parallel.

11. The system of claim 1, wherein the at least one filter is comprised of a polarizable filtration medium having finely-divided particles of glass and polarizable ceramics.

12. The system of claim 1, wherein the disinfectant generator comprises a housing containing a plurality of conduits having electrical cells for exposing electricity to saltwater flowing through the conduits.

13. The system of claim 12, wherein the disinfectant generator further comprises a single inlet coupled to a header that distributes saltwater to the plurality of conduits and at least one of the conduits has a valve upstream of an electrical cell and a valve downstream of the electrical cell.

14. The system of claim 13, wherein the disinfectant generator further comprises at least one sensor positioned downstream of an electrical cell in at least one of the plurality of conduits.

15. The system of claim 13, wherein the disinfectant generator further comprises at least one bypass conduit for controlling flow of saltwater through the conduits of the disinfectant generator.

16. A system for desalinating water, comprising:

at least one ionized gas injector for injecting at least one ionized gas into saltwater to produce a mixture of ionized gas and saltwater;

at least one filter for removing coagulated particles from the mixture of ionized gas and saltwater;

at least one disinfectant injector for injecting at least one disinfectant into the saltwater; and

at least one reaction chamber for mixing the disinfectant with the mixture of ionized gas and saltwater, wherein the mixture of saltwater and ionized gas is separated into a salt slurry and desalinated water.

17. The system of claim 16, wherein reaction chamber further comprises at least one fogging nozzle for delivering the mixture of ionized gas and saltwater to the at least one reaction chamber.

18. The system of claim 16, further comprising at least one mixer for mixing saltwater with at least one ionized gas from the at least one ionized gas injector to produce a mixture of ionized gas and saltwater.

19. The system of claim 16, further comprising at least one filter upstream of the mixer.

20. The system of claim 16, at least one filter for removing coagulated particles comprises a between about a 30 micron filter and about a 50 micron filter.

21. The system of claim 16, further comprising an ionized gas generator for providing ionized gas to the at least one mixer.

22. The system of claim 21, wherein the ionized gas generator includes a gas pathway for exposing a gas to ultraviolet radiation and to a magnetic field as the gas is passed through the ionized gas generator.

23. The system of claim 21, wherein the ionized gas generator is formed from a plurality of chambers, each chamber containing a plurality of ultraviolet lamps and each chamber adapted to allow a gas to pass the through the ionized gas generator.

24. The system of claim 16, wherein the at least one filter is comprised of a polarizable filtration medium having finely-divided particles of glass and polarizable ceramics.

25. The system of claim 16, further comprising a disinfectant generator formed from a plurality of conduits having electrical cells for exposing electricity to saltwater flowing through the conduits.

26. The system of claim 25, wherein the disinfectant generator further comprises a single inlet coupled to a header that distributes saltwater to the plurality of conduits and at least one of the conduits has a valve upstream of an electrical cell and a valve downstream of the electrical cell.

27. The system of claim 25, wherein the disinfectant generator further comprises at least one bypass conduit for controlling flow of saltwater through the conduits of the disinfectant generator.

28. A method of converting saltwater to desalinated water, comprising:

passing saltwater to a mixer where at least one ionized gas is mixed with the saltwater to create a mixture of saltwater and ionized gas;

passing the mixture of saltwater and ionized gas into at least one filter to remove at least a portion of coagulated particles from the mixture;

mixing the mixture of saltwater and ionized gas with at least one disinfectant to produce a mixture of saltwater, ionized gas, and at least one disinfectant;

passing the mixture of saltwater, ionized gas, and at least one disinfectant into a reaction chamber, whereby substantially all of the salt is removed from the mixture and forms a salt slurry and the remaining water is desalinated water.

29. The method of claim 28, further comprising passing saltwater through at least one filter upstream of the mixer.

30. The method of claim 28, further comprising generating at least one ionized gas.

31. The method of claim 30, wherein generating at least one ionized gas comprises exposing air to ultraviolet radiation and a magnetic field.

32. The method of claim 31, wherein generating at least one ionized gas comprises passing air through at least one chamber containing a plurality of ultraviolet lamps surrounding a plurality of magnets forming an electrical field, wherein the magnets are positioned so that adjacent ends of adjacent magnets have like polarity.

33. The method claim 28, further comprising generating at least one disinfectant and mixing the at least one disinfectant with saltwater.

34. The method of claim 33, wherein generating at least one disinfectant comprises passing saltwater through one or more chambers in which electricity is passed through the saltwater.